



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,130	09/29/2005	Takahiro Kishioka	125473	4076
25944	7590	09/27/2006	EXAMINER	
OLIFF & BERRIDGE, PLC			HAMILTON, CYNTHIA	
P.O. BOX 19928			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22320			1752	

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/551,130

Applicant(s)

KISHIOKA, TAKAHIRO

Examiner

Cynthia Hamilton

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/29/2005, 5/11/05, 5/12/2006
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/11/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

STATUTES

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) he has abandoned the invention.

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

OR

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the

Art Unit: 1752

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

(f) he did not himself invent the subject matter sought to be patented.

(g)(1) during the course of an interference conducted under section 135 or section 291, another inventor involved therein establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other inventor and not abandoned, suppressed, or concealed, or (2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

REST of ACTION

6. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Nemoto et al (5,525,457). The examiner notes that Nemoto et al was listed in the family of JP 06/118656 A by Derwent when this examiner accessed the database of EAST on September 20, 2006 thus this rejection is in response to the X of JP 6-118656 A in the PCT search report. No citation of the Derwent page is made as it is not part of the rejection at hand. With respect to instant claim 4,

Art Unit: 1752

all of the examples of Nemoto et al as well as the claims and abstract anticipate the instant invention wherein an acid group and an epoxy group is present in each polymer in the reflection preventing film and wherein acid protective groups are also found in the polymer as in dicyclopentadienyl methacrylate, tert-butyl methacrylate in Synthesis Example 6. With respect to the addition of a phenolic alcohol group and instant claim 4, Nemoto et al discloses the optional use of hydroxy styrene as another monomer to be added to the required acid monomer and epoxy monomer thus making its addition immediately envisionable and thus anticipatory as it is one choice only as set forth in column 6, lines 12-20 as a monomer added to increase bulk and thus improve storage stability or the choice of cinnamoyl monomer with a phenolic -OH group such as the listed 4'-(4-hydroxycinnamoyl)styrene from the examples of usable monomers would have been immediately envisionable making the disclosure of Nemoto et al with respect to this variation anticipatory of the instant compositions wherein a phenolic group has to be present.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nemoto et al (5,525,457). With respect to instant claim 4, all of the examples of Nemoto et al as well as the claims and abstract teach the instant invention wherein an acid group and an epoxy group is present in each polymer in the reflection preventing film and wherein acid protective groups are also found in the polymer as in dicyclopentadienyl methacrylate, tert-butyl methacrylate in Synthesis Example 6. With respect to the addition of a phenolic alcohol group and instant claim 4, Nemoto et al discloses the optional use of hydroxy styrene as another monomer to be added to the required acid monomer and epoxy monomer thus making its addition immediately envisionable and thus anticipatory as it is one choice only as set forth in column 6, lines 12-20, as a monomer added to increase bulk and thus improve storage stability or the choice of cinnamoyl

Art Unit: 1752

monomer with a phenolic –OH group such as the listed 4'-(4-hydroxycinnamoyl)styrene from the examples of usable monomers would have been immediately envisionable and thus prima facie obvious for these reasons.

8. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Hong et al (GB 2 357 512 A). With respect to instant claim 4 and phenolic hydroxyl group, Example 9 with respect to Examples 5 to 7 as choice of polymers of Hong et al as well as the claims and abstract teach the instant invention wherein an acid group and an epoxy group is present in each polymer in the reflection preventing film anticipates the instant invention when hydroxyl phenolic groups are chosen.

9. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 10-120939 A as evidenced by the English Machine translation of JP 10-120939 A. With respect to instant claim 4, the compositions of JP 10-120939 anticipate the instant compositions wherein –COOH groups and epoxy groups are present as in [0036] of JP 10-120939 A.

10. Claims 2 and 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by as given by applicants with English translation at back of document. With respect to instant claims 2, 8 and 10, the composition of [0033] in JP 06-35201 anticipates the instant composition wherein phenolic hydroxyl groups are selected. Instant claim 8 does not require a compound with at least two carboxyl groups be used. It only limits the compound with at least two carboxyl groups if that compound is chosen. Thus, claim 8 in no manner further limits the choice in the phenolic hydroxyl group compound of instant claim 2. With respect to instant claim 10, tetrahydroxybenzophenone is a bi-phenol if bi means two –OH off of each ring or if bi references the number of rings in the phenol compound. If bi-phenol references the total number of OH

Art Unit: 1752

groups substituted directly on any aromatic ring in the phenolic compound then tetrahydroxybenzophenone is not a bi-phenol. The examiner is tasked in examination to use the “broadest reasonable interpretation consistent with the specification” of the claim language. In *re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). See particularly MPEP 2111. The examiner is also tasked during examination with respect to the claims to interpret as broadly as their terms reasonably allow. In *re American Academy of Science Tech Center*, 2004 WL 1067528 (Fed. Cir. May 13, 2004). The words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. In *re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989); *Chef America, Inc. b. Lamb-Weston, Inc.*, 358 F.3d 1371, 1372, 69 USPQ2d 1857 (Fed. Cir. 2004). Thus, JP 06-35201 anticipates the compositions of claim 10 as well. Applicants did not define bi phenol in their specification. The examiner did not see how JP 06-35201 read on instant claim 4.

11. Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by Foster et al (WO 00/53645 A1) which is an English Equivalent of applicant cited JP 2002/539282. With respect to instant claim 3, Examples 2 and 3 of Foster et al set forth species of compositions which anticipate the instant composition. “A generic claim cannot be allowed to an applicant if the prior art discloses a species falling within the claimed genus.” The species in that case will anticipate the genus. *In re Slayter*, 276 F.2d 408, 411, 125 USPQ 345, 347 (CCPA 1960); *In re Gosteli*, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989).

12. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster et al (WO 00/53645 A1) which is an English Equivalent of applicant cited JP 2002/539282. With respect to instant claims 3 and 7, Foster et al teach the mixing of hydroxyl-containing polymers

Art Unit: 1752

and polyfunctional epoxides to form thermally curable undercoating compositions for photolithographic processes. What is not found is a working example wherein the hydroxyl containing polymer is phenol containing and the epoxy compound is triepoxy, e.g. triglycidyl, compound. However, Foster in the paragraph bridging pages 5-6 discloses triglycidyl ethers such as trimethylolpropane triglycidyl ether and glycerol triglycidyl ether. No aromatic triglycidyl example is given by Foster et al. The hydroxyl containing polymers given by Foster et al by example at the bottom of page 6 are inclusive of polymers from hydroxystyrene, hydroxyaryl acrylamide as found in the Examples 2 and 3 of Foster et al as well as novolaks. With respect to instant claims 3 and 7, the use of any of the combinations of hydroxyl-containing polymers and polyfunctional epoxides would have been prima facie obvious to form thermally curable compositions to be used in forming undercoats for photolithographic processes wherein the undercoat layer when cured provides an undercoat layer insoluble in a top resist's solvent system, minimized reflectivity effects and has an etch rate comparable to novolak as set forth by Foster et al on page 4, second full paragraph.

13. Claims 1, 3, 5-7 and 11-14 are rejected under 35 U.S.C. 103(a) as obvious over Padmanaban et al (6,114,085) in view of Foster et al (WO 00/53645 A1). With respect to instant claims 1, 3, 5-7 and 11-14, Padmanaban et al teach all of the instant invention with the exception of identifying what epoxy resin compounds will act as crosslinkers in their antireflective coatings. In Padmanaban et al, see particularly col. 7, lines 1-10. A worker of ordinary skill in the art would look to other antireflective coating compositions for epoxy resins to use. Such prior art is inclusive of Foster et al wherein epoxy resins for crosslinking hydroxy containing polymers are set forth on pages 5 and 6. With respect to instant claims 1, 3, 5-7 and

Art Unit: 1752

11-14, the use of any of the crosslinking epoxy compounds of Foster et al in as the epoxy resin crosslinker in Padmanaban et al would have been prima facie obvious. The epoxy crosslinking ages of Foster have preferably an epoxide equivalent weight of 90 to 6000 which is inclusive of both the instant systems of applicant's claims 1 and 3. With respect to instant claim 5, since the crosslinking agent chosen is not that with a carboxyl group then the limit of claim 5 is met when an hydroxyl group is selected. Claim 5 does not require a carboxyl group be present. With respect to light absorbing, the phenol group is inherently light absorbing.

14. Claims 1, 4, 6 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hong et al (US 2003/0018150 A1). With respect to instant claims 1,4,6 and 11-14, the examples of Hong et al anticipate the instant invention wherein phenolic hydroxy groups are used.

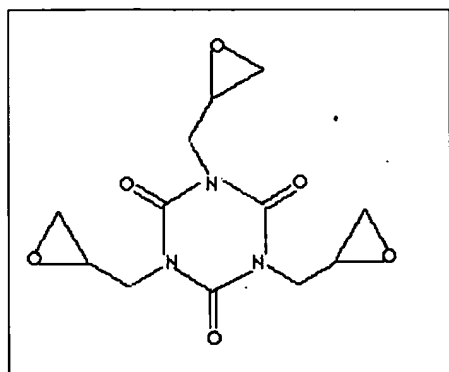
15. Claims 2 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Lees et al (5,380,804). The formulations of Example 3 Part A of Lees et al anticipate the instant coating compositions of claims 2 and 8. The compositions of Lees et al are inherently able to act as undercoating compositions or to be made into undercoating compositions thus being "forming" capable.

16. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishioka et al (either as US 2004/0110096 A1 or as WO 02/086624 A1 as evidenced by US 2004/0110096 A1). WO 02/086624 A1 has a publication date of October 31, 2002 and the National stage of this document, i.e. US 2004/0110096 A1, has a publication date of June 10, 2004. There is no date applicable under 35 USC 102 (e) with respect to these documents. Thus, the dates of concern are the publication dates alone. Since US 2004/0110096 A1 is the National stage of the PCT application of WO 02/086624 A1, US 2004/0110096 A1 is taken as an English translation

Art Unit: 1752

of WO 02/086624 A1 and is used as such here as to evidence the content of WO 02/086624 A1.

All citations are to the content of US 2004/0110096 A1. With respect to instant claims 3 and 9, Kishioka et al teach the instant invention with the exception of a specific working example wherein a triglycidyl isocyanurate compound is mixed with a polymer having either a phenolic hydroxy group or a carboxylic acid group. Kishioka et al teach the use of mixtures of their formula (1) with a resin in [0035]. One example of formula (1) is as described in [0026] as the epoxy derivative with R^1 , R^2 and R^3 being glycidyl. This is the structure as follows:



and is known as triglycidyl isocyanurate in the art. The resins used to mix with the formula (1) compounds are set forth in [0043] in Kishioka et al and are inclusive of polyhydroxystyrene, i.e. polyvinylphenol, polymaleic acid, polyacrylic acid and polymethacrylic acid among others. With respect to instant claims 3 and 9, the mixing of any one of the formula (1) compounds with any of the resins given would have been prima facie obvious to form the compositions of Kishioka et al to be used for forming anti-reflective coatings for use in a lithographic process to obtain an antireflective layer with high reflection reducing effect and does not cause intermixing with a resist layer to be used as set forth by Kishioka et al in their Abstract.

17. Claims 3 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by DERWENT-ACC-NO: 1986-290577. With respect to instant claims 3 and 9, The composition of novolak

Art Unit: 1752

resin and triglycidyl isocyanurate set forth by DERWENT-ACC-NO: 1986-290577 anticipates the instant composition and has the inherent capability to be an undercoating.

18. Claims 3 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hitachi (JP 58-107312 A and attached English abstract. With respect to instant claims 3 and 9, The composition of novolak resin and triglycidyl isocyanurate set forth by Hitachi anticipates the instant composition and has the inherent capability to be an undercoating.

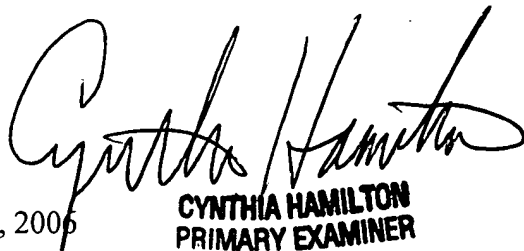
19. Claims 3 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by harad et al (EP 1 203 792 A1) as set forth in Comparative Example B4. See particularly Table 14, pag 38, page 36 [0200].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-1331. The examiner can normally be reached on Monday through Friday 9:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571) 272-0729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1752

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



**CYNTHIA HAMILTON
PRIMARY EXAMINER**

Cynthia Hamilton
Primary Examiner
Art Unit 1752

September 21, 2006